

CLAIM(S)

What is claimed is :

- 5           1. A pigment dispersant useful in a cathodic electrocoating composition comprising the reaction product of (1) an adduct of an alkyl aminoalkyl amine and an alkylene carbonate; and (2) an organic acid to form a tertiary amine salt and (3) an epoxy resin being reacted with the amine salt to form a quaternary ammonium salt.
- 10           2. The pigment dispersant of claim 1 in which the alkyl aminoalkyl amine and the alkylene carbonate are reacted in an approximate equal molar amount.
- 15           3. The pigment dispersant of claim 2 in which the alkylene carbonate is selected from the group consisting of a five-membered ring carbonate or six-membered ring carbonate.
- 20           4. The pigment dispersant of claim 3 in which the alkylene carbonate is propylene carbonate.
5. The pigment dispersant of claim 1 in which the alkyl aminoalkyl amine is an alkylaminopropyl amine.
- 25           6. The pigment dispersant of claim 5 in which the amine is dimethyl aminopropylamine.
- 30           7. The pigment dispersant of claim 1 in which the acid is an organic acid selected from the group consisting of lactic acid, acetic acid and formic acid.
8. The pigment dispersant of claim 7 in which the organic acid is lactic acid.
- 35           9. The pigment dispersant of claim 1 in which the epoxy resin is the diglycidyl ether of bisphenol A having an epoxide equivalent weight of 100 to 1,000.
10. The pigment dispersant of claim 1 in which the alkylene carbonate is propylene carbonate, the alkyl aminoalkyl amine is

dimethylaminopropylamine, the organic acid is lactic acid, and the epoxy resin is the diglycidyl ether of bisphenol A having an epoxide equivalent weight of 100-1,000 acid wherein the alkyl aminoalkyl amine and the alkylene carbonate are reacted stoichiometrically.

11. A process for forming a pigment dispersant which comprises
- 10 reacting an alkylene aminoalkyl amine and an alkylene carbonate in equal molar amounts at about 75-100°C for about 30 to 180 minutes to form an adduct,
- reacting the adduct with an organic acid at about 75-115°C for about 30-180 minutes to form a tertiary amine salt;
- 15 reacting the tertiary amine salt with an epoxy resin having an epoxide equivalent weight of about 100-1,000 at about 75-115°C for about 30-180 minutes to form a quaternary ammonium salt.

12. An aqueous cathodic electrocoating composition comprising an epoxy amine resin, a blocked polyisocyanate crosslinking agent, pigment, and the pigment dispersant of claim 1.